

REMARKS

In view of the above amendment, applicant believes the pending application is in condition for allowance.

The Office Action and prior art relied upon have been carefully considered. Applicant notes the rejection of claims 1-10 under 35 USC 112 and claim 7 has been objected to. The informalities in the claims have been corrected so that further rejection and objection are not anticipated.

Claims 1-4 have been rejected under 35 USC 102(b) and claims 5-10 have been rejected under 35 USC 103(a). The following remarks will address the cited prior art.

In paragraphs 10-11, the Examiner contends that claims 1-3 are anticipated by Chudoba (US 6 254 778). **Chudoba** relates to a process and a device for biologically removing the carbon-based and nitrogenous pollution contained in effluents, in particular waste waters, by means of coupling a very heavily charged anoxic sludge with high-speed nitrification, in a culture bound to a fixed or mobile support (see col.1, lines 7-12).

According to **Chudoba**, a first treatment step takes place in a reactor 2, with anoxic sludge (see col. 8 and following);

a second treatment step of nitrification takes place in a nitrification reactor 9 (see col. 9, line 61 and following). Some of the effluent 10, from the nitrification reactor 9, is then recycled via 11 into the anoxic reactor 2 to be denitrified by the anoxic sludge (see col. 9, line 67 and col. 10, lines 1-2).

On the contrary, according to the invention there is no recycling, upstream of the single aeration tank 1, of an effluent coming from a nitrification reactor. According to the invention, the treatment concerns only the carbon-based pollution, since there is no recycling of nitrified effluent. Consequently, according to the invention, no nitrate is recycled into the heavy load of tank 1 and there is no anoxyc process, even with a low concentration of oxygen.

The invention treatment relies upon the physicochemical mechanism of “biosorption” (see the specification on page 3, lines 18-22) corresponding to a rapid transfer of matter from the liquid phase to the floc, by adsorption, absorption and trapping.

According to Chudoba, the treatment relies on biological mechanisms in which heavy loads experience high biological heterotrophic activity (see. col.3, line 60). No physicochemical mechanism of “biosorption” is contemplated.

According to the invention, the hydraulic residence time of the effluent in the tank is between 30 and 90 minutes, preferably between 40 and 60 minutes, while according to Chudoba the overall residence time is from 1.5 to 5 hours and preferably from 2 to 3 hours (see col.10, lines 12-16).

This difference between the residence times confirms the difference between the treatment mechanisms. With a short residence time according to the invention, physicochemical mechanisms such as adsorption are dominating.

According to the invention no nitrification takes place in the tank. The sludge age is less than 1 day and preferably less than 10 hours so that the carbon pollution is treated essentially by the physicochemical mechanisms described in the specification.

According to the invention as set forth in claim 1 there is a high mass loading, the applied organic loading being equal to or greater than at least 2 Kg COD/Kg SM/day. With such a mass loading the invention method is controlled at the anaerobis limit (see the specification on page 4, l. 18-19) allowing the biosorption effect. According to the invention it is not possible to operate in anoxic conditions.

The process according to Chudoba implements an anoxic condition; and if there is an anoxic condition, there is a nitrate respiration called denitrification. The operation conditions of Chudoba are quite different from the invention conditions. According to the invention, there is no possibility of nitrification and, consequently, an anoxic operation cannot proceed.

The foregoing comments show that Chudoba neither anticipates, nor make obvious the invention such as defined by Claim 1 which appears patentable.

Claims 2 and 3, depending from claim 1, are not anticipated since Chudoba is not pertinent against Claim 1. Claims 5-10 are rejected as obvious by Chudoba in view of Breider (US 4 442 005) or in view of Voyt (US 4 891 136). Claims 5-10 depend, directly or indirectly, on Claim 1.

Breider or Voyt may teach some features concerned by Claims 5-10, however neither Breider nor Voyt find a remedy for the deficiencies of Chudoba concerning the features of Claim 1. Consequently Claims 5-10 are also patentable along with claim 1.

In view of the above, consideration and allowance are, therefore, respectfully solicited.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

The Director is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185, under Order No. 21029-00278-US from which the undersigned is authorized to draw.

Dated: October 11, 2006

Respectfully submitted,

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